B. M. Waldburg

TERMS—Three Dollars per annum, payable in advance.

THE

SOUTHERN AGRICULTURIST, HORTICULTURIST, AND REGISTER OF RURAL AFFAIRS,

ADAPTED TO THE

SOUTHERN SECTION OF THE UNITED STATES.

NEW SERIES.—VOLUME V.—NUMBER 10,

OCTOBER, 1845.

PUBLISHED BY A. E. MILLER;
No. 4 BROAD-STREET.

CHARLESTON:
PRINTED BY MILLER & BROWNE,
Old Stand, No. 4 Broad-street.
1845.

☞ WEIGHT 2 ounces—POSTAGE, 3½ cents.

CONTENTS.

PAGE.

Meteorological Considerations, by Boussingault........................ 361
On the Improvement of Soils without Manures........................ 372
Manures........................ 375
Effect of a Straw Top-dressing........................ 379
Hedge Fences, by Edson Harkness........................ 380
Live Fences........................ 381
Pickling Meat........................ 385
Report of the Committee of Inspection of the St. John's Colleton Agricultural Society........................ 385
Agricultural Society of South-Carolina, Report on Cradling Rice........................ 388
Report on Sweet and Irish Potatoes, presented to the Newberry, S. C. Agricultural Society, at their annual meeting in July last........................ 390
Commercial Association at Columbia, to supply Corn to the People........................ 393
To Destroy Insects on Trees, &c., by Robt. Chisolm........................ 395
Advantage or Crushing the Food of Horses, by A. Gyde........................ 397
New Hames and Elastic Saddles........................ 398
Agricultural Statistics, letter by Edmund Burke........................ 398
Cherries without Stones........................ 400
Discovery of the Wheat Insect........................ 400
To preserve Eggs........................ 400
To make Nest Eggs........................ 400

The Southern Agriculturist.

(NEW SERIES.)

Vol. V. FOR OCTOBER, 1845. No. 10.

From Boussingault's Rural Economy.

METEOROLOGICAL CONSIDERATIONS.

§ 1. *Temperature.*

The phenomena of vegetation are always accomplished under the influence of a certain temperature. If, in addition, the concurrence of light, air, moisture, and various inorganic substances, be required, it is still perfectly certain that all of these agents only contribute to the development of a plant when they are assisted by a due measure of heat, variable with reference to the different vegetable species, and comprised within limits that are rather far apart, but essential. Germination, for example, takes place at a temperature a few degrees above the freezing point of water, 38° or 39° F., and at one indicated by 100° or 120° of the same scale. The forests of tropical countries thrive in a hot, moist atmosphere, which often marks upwards of 100° F.; and I met with a saxifrage upon the Andes, at an elevation of 15,748 feet above the level of the sea, beyond the line of perpetual snow, and very near the line of perpetual congelation.

Some families of plants require a temperature not only high, but that never falls below a certain very limited degree; the majority of the intertropical plants are in this predicament. There are others which, imperatively requiring a high temperature for their growth and perfection, nevertheless suspend their powers during the winter, and bear without detriment degrees of cold of great intensity; among the number may be cited the larch-pine, which abounds in Siberia, and stands the utmost rigors of its climate, where the thermometer at mid-winter frequently falls to 30° and even 40° below zero, F.

The meteorological habitudes or dispositions of plants being extremely various, it follows, that the geographical distribution of plants is a consequence of the distribution of heat over the surface of the globe—of climate

The earth we inhabit appears to have a heat proper to itself; it is a heated body in progress of cooling. It is found, in fact, that as the centre of the earth is approached, as mines penetrate more deeply below its surface, the temperature increases. Below a very limited distance from the surface, the temperature ceases to be

affected by variations in the temperature of the general atmosphere; from the point of *invariable temperature* the subterranean heat increases uniformly at the rate of 1° cent. (1.8° Fahr.) for every 101 feet of descent.

The depth at which the point or stratum of *invariable temperature* is met with, varies in different places, and is mainly affected by the extent of the thermometrical variations in the superincumbent air in the course of the year. In the higher latitudes, consequently, the depth is very considerable; at Paris, for example, M. Arago has found that a thermometer, buried at 26¼ feet under the surface, does not remain absolutely stationary. In climates of greater constancy, as may be conceived, the layer of invariable temperature will be found much nearer the surface; were the temperature of the air invariable, the layer of invariable temperature would necessarily be found at the surface of the ground. In countries under and close to the equator, this, in fact, is found to be the case. From a series of observations which I made in South America, between the 2d parallel of southern and the 11th of northern latitude, I found that, near the line, the layer of invariable temperature is found nearly at the surface; the thermometer, placed in a hole about one foot deep, under the shade of an Indian cabin, or a shed, does not vary by more than from one-tenth to two-tenths of a degree cent.

It was probably under the influence of the internal or proper heat of the globe, according to M. de Humboldt, that the same species of animals which are now confined to the torrid zone, inhabited, in former and remote ages, the northern hemisphere, covered as it then was by arborescent ferns and stately palms. It is easy to imagine how, as the surface of the earth cooled, the distribution of climates became almost exclusively dependent on the action of the solar rays, and how also those tribes of plants and of animals, the organization of which required a higher temperature and more equable climate, gradually died out and disappeared.*

In the state of stability to which the surface of the globe appears actually to have attained, the sun must be considered as the agent which most directly influences the temperature of our atmosphere. The length of the day, the number of hours during which the sun is above the horizon, coupled with the height to which he ascends, such is the cause with which the temperature of each particular latitude is primarily connected; and, in looking at the subject practically, it is found to be so precisely; not only is the mean temperature of the year dependent on the length of the days, and the meridian altitude of the sun, but the mean temperature of each month in the year is essentially connected with the same circumstances. In the northern hemisphere, the temperature rises from about the middle of January, slowly at first, more rapidly in April and May, to reach its maximum point in July and August, when it begins to fall again until mid-January, when it is at its minimum.

* Humbolt's Central Asia, v. iii, p. 98.

The highest mean annual temperature is, of course, observed in the neighborhood of the equator; between 0° and 10° or 12° of latitude on either side, at the level of the sea, where, besides the equality of day and night, the sun, always elevated, passes the zenith twice a year. The observations that have been made up to this time, lead us to conclude that this temperature oscillates between 26° and 29° cent.; 78.8° and 84.2° Fahr.

Did the earth present unvarying uniformity of surface, not only with reference to elevation but to constitution, so that the power of absorbing and of radiating heat should be everywhere alike, the climate of a place would depend almost entirely on its geographical position: the points of equal temperature would be found on the same parallels of latitude, or, to employ the happy expression introduced by M. de Humboldt, the *isothermal* lines would all be parallel with the equator. But the surface of our planet is covered with undulations and asperities, which cause its outline to vary to infinity; and then the soil is dry, or swampy; it is a moving desert of sand, or covered with umbrageous and impenetrable forests: and all this causes corresponding varieties in climate, for the surface becomes heated in different degrees as it is in one or other of these conditions. Another very important consideration is, that the surface is a continent, or an island in the ocean: the climate of a country, or a district, is vastly influenced by its proximity to or distance from the sea. The difficulty, the slowness, with which such a mass of liquid as the ocean becomes either heated or cooled, is the cause of the temperate character both of the summers and winters of the shores it bathes, and the islands of moderate dimensions it surrounds. As we penetrate great continents from the sea-board, we find that the temperature both of summer and winter becomes extreme, and the difference between the mean summer and mean winter temperature is great; and again we find, that places which have considerably different latitudes, have still very nearly the same mean annual temperature. The mean temperature of Paris, in latitude 48° 50', is about 51.4° F.; that of London, in lat. 51° 31', is 50.7° F.; that of Dublin, in lat. 53° 23', is 49.1° F.; and that of Edinburgh, in lat. 55° 57', is 47.4° F.

An island, a peninsula, and the sea-shore, consequently, enjoy a more temperate and equable climate—the summers less sultry, the winters more mild. On the shores of Glenarm, in Ireland, in latitude 55°, the myrtle vegetates throughout the year as in Portugal; it rarely freezes in winter; but the heat of summer does not suffice to ripen the grape. Under the very same parallel, however, at Konigsberg, in Prussia, they experience a cold of 17° and 18° below zero of Fahrenheit's scale in the winter. The ponds and little lakes of the Feroe Islands, although situated in N. lat. 62°, never freeze, and the mean winter temperature is very nearly 40° F. On the coasts of Devonshire, in England, the winters are so mild, that the orange-tree, as a standard, will there carry fruit; and the agave has

been seen to flourish, after having lived both winter and summer, for twenty-eight years, in the open air, uninjnred.

One of the grand characteristics of what may be called a *maritime* climate, is the less difference which occurs between the temperature of summer and that of winter. At Edinburgh, for instance, the difference only amounts to 19° F.; at Moscow, which is nearly on the same parallel, the difference amounts to 50° F.; and at Kasan, (lat. 56,) it is as much as 56.3° F.

The influence of extensive continents, or remoteness from the sea-board, does not seem merely to render a climate extreme, increasing at once the heat of summer and the cold of winter. The collective observations on temperature, made in Europe and in Asia, show that the mean annual temperature decreases as we penetrate more into the interior of continents towards the east. Humboldt ascribes this diminution of temperature partly to the refrigerating action of the prevailing winds. While the mean annual temperature of Amsterdam (N. lat. 52° 22') is 49.6° F.; that of Berlin (N. lat. 52° 31') is 47.4° F.; that of Copenhagen (N. lat. 55° 41') is 46.7° F.; and that of Kasan (N. lat. 55° 48') is but 35.9° F.

The highest temperature which has yet been registered, as occurring in the open air, appears to have been observed by Burckhardt, in Upper Egypt; the thermometer indicated 47.5° cent., upwards of 117° F. The lowest was seen by Captain Back, in North America, when the thermometer fell to —.56° cent., 68.8° F. below zero.

§ 2. *Decrease of temperature in the superior strata of the atmosphere.*

The temperature rises rapidly as we ascend in the atmosphere; places among the mountains always possess a climate more severe as they are higher above the level of the sea. Even under the equator, height of position modifies the seasons so much, that the hamlet of Antisana, which is within one degree of south latitude, but which is upwards of 13,000 feet above the sea level, has a mean temperature which does not differ much from that of St. Petersburgh. Near it, but at a still greater height, the summit of Cyambe, covered by an immense mass of everlasting snow, is cut by the equinoctial line itself.

The cold which prevails among lofty mountains, is ascribed to the dilitation which the air of lower regions experience in its upward ascent, to a more rapid evaporation under diminished pressure, and to the intensity of nocturnal radiation.

Places which are situated upon the same mountain-chain, nearly in the same latitude, and at the same height, have often very different climates. The temperature which would be proper to a place perfectly isolated, is necessarily modified by a considerable number of circumstances. Thus the radiation of heated plains of considerable extent, the nature of the color of the rocks, the thickness of the forests, the moistness or dryness of the soil, the vicinity of glaciers, the prevalence of particular winds, hotter or colder, moister or drier,

the accumulation of clouds, &c., are so many causes which tend to modify the meteorological conditions of a country, whatever its mere geographical position. The neighborhood of volcanoes in a state of activity does not appear to affect the temperature sensibly; thus Purací, Pasto, Cumbal, which have flaming volcanoes towering over them, have not warmer climates than Bogota, Santa Rosa, De Osos, Le Param de Herve, &c., situated on sand-stone or syenite.

From the whole series of observations which I had an opportunity of making on the Cordilleras, it appears that one degree of temperature, cent., 1.8° F., corresponds to 195 metres, or 649.4 feet of ascent among the equatorial Andes. In Europe, it has been ascertained that the decrease of temperature in ascending mountains, is more rapid during the day than during the night—during summer than during the winter; for example, between Geneva and Mount St. Bernard, to have the Fahrenheit thermometer fell one degree, it is necessary to ascend:

In spring - - - - - - -	326.1 feet.
In summer - - - - - - -	336.6 "
In autumn - - - - - - -	382.2 "
In winter - - - - - - - -	422.2 "

It sometimes happens, however, that in winter, in a zone of no great elevation, the temperature increases with the elevation—a fact which Messrs. Bravais and Lottin observed in the 70° of N. lat., in calm weather; at an elevation between 1312 and 1640 feet, the rise amounted to as many as 6° centigrade, 10.8° Fahrenheit.

In no part of the globe is the diminution of temperature, occasioned by a rise above the level of the sea, more remarkable than among equatorial mountain ranges; and it is not without astonishment that the European, leaving the burning districts which produce the banana and cocoa-tree, frequently reaches, in the course of a few hours, the barren regions which are covered with everlasting snow. "Upon each particular rock of the rapid slope of the Cordillera," says M. de Humboldt, "in the series of climates superimposed in stages, we find inscribed the laws of the decrease of caloric, and of the geographical distribution of vegetable forms."*

In the hottest countries of the earth, the summits of very lofty mountains are constantly covered with snow; in the elevated and cold strata of the atmosphere, the watery vapor is condensed, and falls in the state of hail and snow. In the plain, hail melts almost immediately; the fusion is slower upon the mountains; and for each latitude there is a certain elevation where hail and snow no longer melt perceptibly. This elevation is the *inferior limit of perpetual snow*.

The accidental causes which tend to modify the temperature of a climate, also act in raising or lowering the snow-line. On the

*Humboldt's Central Asia, v. iii, p. 236.

southern slope of the Himalaya, for example, the snow-line does not descend so low as it does upon the northern slope; and in Peru, from 14° to 16° of S. latitude, Mr. Pentland found the perpetual snow-line, at an elevation of 1312 feet higher than it is under the equator.

Elevation above the level of the sea, consequently, has the same effect upon climate as increase in latitude. Upon mountain ranges, vegetation undergoes modification in its forms, becomes decrepit, and disappears towards the line of perpetual snow, precisely as it does within the polar circle, and for no other than the same reason, viz: depression of temperature.

The constancy and the small extent of variation which occurs in the temperature of the atmosphere under the equator, enables us to indicate with some precision the point of mean temperature below which there is no longer any vegetation. In ascending Chimborazo, I met with this point at the height of 15,774.5 feet, where the mean temperature approached 35° F., and where consequently the saxifrages, which root among the rocks, must still receive a temperature of from 41° to 43° F. during the day, inasmuch as far beyond the inferior snow-line, at an elevation of 19,685 feet above the sea-line, I saw a thermometer suspended in the air, and in the shade mark 44.6° F.

In considering the extension of vegetation towards the polar regions, we discover plants growing in very high latitudes in places which have a mean temperature much below that which I believe to be the limit of vegetable life on the mountains of the equatorial region. In these rigorous climates vegetation is suspended by the severity of the cold during the greater portion of the year; it is only during the brief and passing heat of summer that the vegetable world wakes from its long winter sleep. Nova Zembla, lat. 73° N., the mean temperature of whose summer is between 34° and 35° F., is perhaps, like the perpetual snow-line of the equator, the term of vegetable existence. It is also to the very remarkable heat of the summer in countries situated at the northern extremity of the continent of Asia, remarkable if it be contrasted with the intensity of the winter cold, that man succeeds in rearing a few culinary vegetables in those dreadful climates. At Jakoustk, in 62° of N. lat., and where mercury is frozen during two months of the year, the mean temperature of summer is very nearly 64° F. We have here, as M. de Humboldt observes, "a well-characterized continental climate," examples of which indeed are frequent in the north of America. At Jakoustk wheat and rye sometimes yield a return of 15 for 1, although at the depth of a yard the soil which grows them is constantly frozen.*

The limit of perpetual snow being much lower upon the mountains of Europe than in tropical countries, agriculture ceases at a much less evelation. At a height of 6560 feet above the level of the sea,

* Humboldt's Central Asia, vol. iii, p. 49.

the vegetables of the plain have almost entirely disappeared. In Northern Switzerland the vine does not grow at an elevation of more than 1800 feet above the sea-line; maize scarcely ripens at an elevation of 2850 feet, while in the Andes it still affords abundant harvests at an elevation of 8260 feet. On the plateau or table land of Los Pastos, fields of barley are seen at upwards of 10,000 feet above the level of the sea; but on the northern slope of Monte Rosa, in Switzerland, barley fails at an elevation of about 4260 feet; on the southern slope, indeed, it reaches a height of about 6560 feet; and this great variation in the ultimate limit of barley is frequently observed with reference to the same plant grown upon opposite aspects of a mountain range. The difference is ascribed to local influences; thus, it is a well-ascertained fact, that on the mountains of the northern hemisphere vegetation reaches a much higher latitude upon southern than upon northern exposures; but a general law, and one applicable to every latitude, is, that the higher we rise above the level of the sea, the scantier does vegetation become, the later do harvests reach maturity; but as the heat of the atmosphere increases with the elevation, it follows that there is an obvious relation between the time a crop is upon the ground and the mean temperature of the place or season where it grows. We have still to examine this relationship.

§ 3. *Meteorological circumstances under which certain plants grow in different climates.*

In discussing the conditions of temperature under which the various plants that are common in our European agriculture come to maturity, we are led to conclusions which are not without interest. A knowledge of the mean temperature of a place situated between the tropics suffices of itself to give us an idea of the nature of its agriculture; in fact, the temperature of each day differs little from that of the entire year, during which vegetable life proceeds without interruption. It is altogether different with regard to countries situated beyond the limits of the torrid zone. The mean annual temperature is not then a datum sufficient to enable us to appreciate the agricultural importance of a country. In order to know what the earth will produce, the temperature proper to the different seasons of the year must be known; in a word, it is the mean temperature of the cycle in which vegetation begins and ends that it imports us to ascertain, in order to learn what the useful plants are which may be required of the soil.

In examining the question which now engages us, we first inquire what time elapses between the sprouting of a plant and its maturity, and then we determine the temperature of the interval which seperates these two extreme epochs in vegetable life. In comparing these data with reference to the same species of plant grown in Europe and America, we arrive at the following curious result, that the number of days that elapse between the commencement of vege-

tation and the period of ripeness, is by so much the greater as the mean temperature is lower. The duration of the life of the vegetable would be the same, however different the climate, were this temperature identical; it will be longer or it will be shorter as the mean temperature of the cycle itself is lower or higher. In other words, the duration of the vegetation appears to be in the inverse ratio of the mean temperature; so that if we multiply the number of days during which a given plant grows in different climates, by the mean temperature of each, we obtain numbers that are very nearly equal. This result is not only remarkable in so far as it seems to indicate that upon every parallel of latitude, at all elevations above the level of the sea, the same plant receives in the course of its existence an equal quantity of heat, but it may find its direct application by enabling us to foresee the possibility of acclimating a vegetable in a country, the mean temperature of the several months of which is known.

Cultivation of Wheat, Alsace.

In 1835 we sowed our wheat on the 1st of November; the cold set in shortly after the plant had sprung, and the harvest took place the 16th of July, 1836. The vegetation during the last days of autumn is so slow and irregular, that it may be assumed without sensible error, that it really begins in spring, when the frosts are no longer felt; from this period only does it proceed without interruption. For Alsace I regard this period as beginning with the 1st of March.

The period of the growth was, therefore, 137 days, the mean temperature was 59° F., (3083° F.)

Tremois wheat, this same year, required 131 days to ripen under a mean temperature of between 60° and 61° F., (7925° F.)

At Paris, setting out from the 31st of March, wheat generally requires, 160 days to attain maturity, the mean temperature being about 56° F., (8960° F.)

At Alais the month of February having generally but few days of heat, it may be regarded as the epoch when the continued vegetation of autumn-sown wheat commences. The harvest taking place on the 27th of June, the number of days which it requires to ripen is 146, the mean temperature being between 57° and 68° F., (8322° F.)

Cultivation of wheat in America.

At Kingston, New-York, the wheat is sown in autumn, vegetation suspended through the winter resumes its activity in the beginning of April, and the harvest takes place about the 1st of August. The crop is therefore growing during about 122 days under the influence ot a mean temperature of 63° F., (7680° F.)

In the same place Tremois wheat is sown in the beginning of May, and the harvest takes place towards the 15th of August, so that it is 106 days on the ground under a mean temperature of 68° F., (7208° F.)

At Cincinnati the wheat sown in the end of February is harvested in the 2nd week in July, say the 15th day, the crop is therefore 137 days on the ground under a mean temperature of between 60° and 61° F. (8288° F.)

Intertropical Region.

Wheat sown at the end of February was repeated on the 25th of July at Zimijaca, plain of Bogota, having been 147 days on the ground, the mean temperature being between 58° and 59° F., (8526° F.)

At Quinchuqui the vegetation of wheat begins in February and ends in the month of July, say 181 days; and I found the mean temperature to be between 57° and 58° F.

At Venezuela, according to M. Codazzi, wheat to ripen requires 92 days at Turmero, mean temperature between 75 2° and 76° F., (6918° F.;) 100 days at Truxillo, mean temperature 72.1° F., (7210° F.)

Cultivation of Barley.

Of the cereals, barley is that which succeeds in the most diversified climates. It comes to maturity under the burning heats of the tropics; and in regions where the mean and constant temperature is scarcely 52° F., fields of barley of great beauty are still encountered.

At Alsace (Bechelbronn) barley sown at the end of April was harvested on the 1st of August. It had remained 92 days on the ground, the mean temperature having been between 66° and 67° F., (6118° F.)

Winter barley sown on the 1st of November, was cut on the 1st of July. Reckoning the period of active vegetation from the 1st of March, it was 122 days in coming to maturity, the mean temperature having been between 58° and 59° F., (7076° F.)

At Alais winter barley is harvested on the 18th of June. Assuming that, as in the case of wheat, the 1st of February is the date of commencing vegetation, it must have taken 137 days to come to maturity under a mean temperature between 55° and 56° F.

In Egypt upon the banks of the Nile, barley is sown in the end of November, and the harvest takes place at the end of February, at an interval therefore of 90 days, and the mean temperature of the winter at Cairo is nearly 70° F., (6300° F.)

At Kingston, North America, the barley is sown in the beginning of May, and the crop is cut towards the beginning of August, in about 92 days, therefore, the mean temperature being between 66° to 67° F.

At Cumbal, under the line, there is no fixed period for sowing barley. It is generally put into the ground on the approach of the rainy season about the 1st of June, and it is then reaped about the

middle of November; it therefore stands on the ground for about 168 days, and the mean temperature is between 51° and 52° F.

At Santa Fe de Bogota they reckon about four months between the barley seed-time and harvest, or about 122 days, the mean temperature being between 58° and 59° F.

Cultivation of Maize, or Indian Corn.

In the neighborhood of Bechelbronn the maize which sprouted on the first of June yielded an abundant harvest on the 1st of October, the mean temperature having been 68° F.

In South America maize comes to maturity in the course of three months, say 92 days, the mean temperature being between 81° and 82° F.; but on the elevated plains, as that of Santa Fe, maize will require six months to come to maturity, say 183 days, and there the mean temperature is 59° F.

Cultivation of the Potato.

In 1836 our potatoes at Bechelbronn were put into the ground on the 1st of May, and the crop was gathered on the 15th of October, after 157 days, therefore, the mean temperature having been about 65° F.; but in ordinary years, when the temperature is less elevated than that of 1836, the potato crop is generally gathered at the end of October, after 183 days, the mean temperature having been as before nearly 59° F.

In the neighborhood of Alais potatoes are planted at the end of March and taken up about the 1st of September, after five months or 153 days, the mean temperature of which has been 70° F.

According to M. Codazzi potatoes are grown near the lake of Valencia, (Venezuela,) in 120 days, and the mean temperature of Maracaibo near the lake is 78° F.

According to the same observer, the potato still yields good crops at Merida in the Cordilleras, where the mean temperature is between 71° and 72° F., and the growth lasts about 4¼ months.

On the temperate levels of New Granada at Santa Fe, I saw potatoes set in the middle of December immediately after the rainy season, and the harvest was gathered in the course of the first week in June, the crop therefore was at least 200 days in the ground, the mean temperature having been between 58° and 59° F.

On the occasion of my ascent of the volcanic mountain, Antisana, I ate on the 4th of August some potatoes which had just been gathered, and which had been planted in the beginning of November, so that the crop had been 276 days in the ground, the mean temperature of the country being 52° Fahr.

But this is not yet the superior limit to the cultivation of potatoes under the equator. They are still grown at Cambugan, the mean temperature of which scarcely exceeds 49° Fahr., the plant remaining nearly eleven months in the ground, and the crop being frequently

lost from frosts that occur at this great elevation in the course of the months of November and January.

Cultivation of the Indigo Plant.

In Venezuela, in plantations very near the level of the sea, the first crop is cut about eighty days after sowing. The mean temperature is there between 81° and 82° Fahr. In other countries where the mean temperature ranges between 72° and 74° Fahr., which must be regarded as the limits to the growth of indigo, the first cutting takes place $3\frac{1}{2}$ months or 106 days after the sowing. In India the first cutting seems generally to occur about ninety days after the sowing, and the mean temperature of the two winter months and of the summer months when the crop is on the ground, at Bombay is about 76° Fahr.

I shall terminate this section by calling the attention of vegetable physiologists to a fact which appears to have escaped them. It is this: that plants in general, those of tropical countries very obviously so, spring up, live, and flourish, in temperatures that are nearly the same. In Europe and in North America an annual plant is subjected to climatic influences of the greatest diversity. The cereals, for example, germinate at from 43° to 47° or 48°; they get through the winter alive, making no progress; but in the spring they shoot up, and the ear attains maturity at a season when the temperature, which has risen gradually, is somewhat steady at from 74° to 78° Fahr.

In equinoctial countries things pass differently: the germination, growth, and ripening of grain take place under degrees of heat which are nearly invariable. At Santa Fe the thermometer indicates 79° Fahrenheit at seed as at harvest time. In Europe the potato is planted with the thermometer at from 50° to 54° Fahrenheit, and it does not ripen until it has had the heats of July and August. But we have just seen that this plant grows slowly indeed, but regularly, in places where the temperature, nearly invariable, does not rise above 48.2° or 50° Fahr.

Germination, and the evolution of those organs by which vegebles perform their functions in the soil and in the air, take place at temperatures that vary between 32° and 112° Fahrenheit; but the most important epoch in their life, ripening, generally happens within much smaller limits, and which indicate the climate best adapted to their cultivation, if not always to their growth; for the vine grows lustily in many places where its fruit never ripens. To produce drinkable vine, a vineyard must have not only a summer and an autumn sufficiently hot; it is indispensable in addition that at a given period—that, namely, which follows the appearance of the seeds—there be a month, the mean temperature of which does not fall below 19° cent, or about $66\frac{1}{2}$° Fahrenheit, a fact of which conviction may be obtained from the following table which I borrow from M. de Humboldt:

	Temperature of summer.	Temperature of autumn.	Temperature of the hottest month.
Bordeaux	70° Fahr.	58°	73.3 F. very favorable.
Frankfort, A. M.	65	50	66.0
Lausanne	65.2	49.7	65.8
Paris	65.8	52.2	66.2
Berlin	63.2	48.0	64.4 Wine scarcely drinkable.
London	62 9	51.2	64 1 Vine not cultivated.
Cherbourg	61.9	54.4	63.2 "

In high latitudes the disappearance of vigorous vegetation in plants may depend quite as much on intensity of winter colds as on insufficiency of summer heat. The equable climate of the equatorial regions is therefore much better adapted than that of Europe to determine the extreme limits of temperature between which vegetable species of different kinds will attain to maturity. Thus it has been found that the vine between the tropics is productive in temperatures that vary from 69° F. to 79° or 80°. I shall terminate with a list of the temperatures favorable to the particular vegetables in the success of which man is more especially interested.

	Maximum.	Minimum.		Maximum.	Minimum.
The cocoa, or chocolate bean	82° F.	73° F.	Pine-apple	"	68
Banana	"	64	Melon	"	67
Indigo	"	71	Vanilla	"	68
Sugar-cane	"	71	Guaduas	"	77
Cocoa-nut	"	78	The vine	79	74
Palm	"	78	Coffee	79	74
Tobacco	"	65	Anise	77	66
Manihot	"	72	Wheat	74 (?)	74
Cotton-tree	"	67	Barley	74	59
Maize	"	59	Potatoes	75 (?)	52
Haricots	"	59	Arachaca	75	49
Orchil	"	72	Flax	74	54
Rice	"	75	Apple	72	59
Calabash	"	72	Oak	67	61
Carica papaya	"	66			

[To be Continued.]

OF THE IMPROVEMENT OF SOILS WITHOUT MANURES

Soils may be improved in several ways without manures, and their produce of useful vegetables much increased; the principal ones are, pulverization, an alteration of their constituent parts, draining, or watering, and by consolidation.

Pulverization.—It is well known that plants will not grow in a soil which is too hard and compact to admit of the free admission of air, water, and heat, and for the extension of the roots of plants. An abundance of roots is essential to the thirfty growth of most plants, and pulverization promotes the formation of roots and fibres. Hence the utility of stirring the soil after the plant has begun to grow, to increase the formation of roots and fibres. Pulverization also increases the power of the soil to absorb moisture from the atmosphere, by rendering it something like a piece of sponge.—

Hence the utility of hoeing plants when the ground is dry, because it increases the absorbent powers of the soil. Therefore, the old custom of hoeing when the ground is moist, is not founded on truth. A soil is much more heated by the air, when laid light than when compact; because the earths of a soil are bad conductors of heat, and could not be readily heated by contact only, and therefore require the free ingress of warm air, to produce a genial warmth. Pulverization also increases the food of plants, by enabling water, which contains carbonic acid, to pass freely to the roots; it also exposes the manures of the soil to heat, light, &c., producing fermentation, and thus preparing them to answer as food for plants.

Alterations of the parts of soils may be produced either by adding what is deficient, or taking away that part which is in excess, or by changing the nature of parts by fire.

To ascertain the composition of soils which are unproductive, in order to improve them by an alteration of their parts, it is necessary to compare them with fertile soils in similar situations, and the same neighborhood; the difference may in some cases indicate the proper method of improvement. If the fertile soil contain a large quantity of sand in proportion to that of the barren soil, sand added to the latter may improve it; if deficient in clay or lime, these must be added. If a soil contain acid or the salts of iron, although otherwise of a good texture or composition, it cannot produce the noble class of plants. If a soil contains sulphate of iron (copperas) the proper remedy will be a top-dressing of lime; and the same would be proper for all *sour* soils. Where a soil contains too much lime, a dressing of sand will improve it; and sandy soil would be benefited by a dressing of clay or marl, or even swamp mud. Soils having the nature of peats, are rendered exceedingly productive by draining and a dressing of sand. The materials necessary for these purposes are generally found near at hand. Many of the poor sandy soils of our country might be greatly improved by the bog mud which is found in the low places. Beds of sand and gravel are almost always found below clay.

Burning has been long practiced in our country on new soils; less, however, with a view to improve the soil than to clear the ground.

Soils which contain a large portion of dead vegetable matter, or which are composed of stiff clay, may be economically improved by removing the top sod, drying it, and then burning it on the sod, or if covered with bushes, cutting them down and burning them on the ground. The effect of fire on the soil is, to render it less compact, lighter, and not so retentive of moisture; and when properly applied it will render a stiff, damp, and cold soil into one dry, powdery and warm: but where a soil already possesses these essential qualities, fire must be injurious, because it will destroy a portion of the vegetable matter in the soil. It is evident then, that sandy soils are injured by burning. We have seen the experiment tried on a large scale

in New Hamshire, of clearing a sandy soil without fire. Four acres of *pine plain* had the wood and underbrush cut and carried off clean, and then sowed with winter rye and grass seed. Adjoining this was a piece of the same kind of soil, which was cleared in the usual way by fire, and sowed at the same time with rye. The first piece yielded 40 bushels of rye to the acre, while the piece burnt over, yielded only 21 bushels to the acre; and the former piece has since yielded much more pasture feed than the latter. Here the fire burnt up the vegetable substances of the soil and left it poor.

Draining and Flooding.—Where a soil rests upon a subsoil or bed which does not permit water to pass through it with facility, the water will collect on the surface and become stagnant, which obstructs the free circulation of the juices of plants and thus injures their growth. Hence the utility of surface draining, or small ditches and gutters. Some soils are full of springs, causing them to be cold and unproductive, and hence the origin and utility of drains under the surface, to convey away the superfluous water.

In many parts of New England meadows are flooded in the fall and during the winter, with a beneficial effect—the water generally being impregnated with animal and vegetable matter, particularly if the stream flows through a cultivated region. In cold seasons it preserves the roots and leaves of grass from being injured.

Consolidation.—Every gardener knows the benefit of treading in seeds, on some kinds of soil; and the utility of the roller is beginning to be appreciated by our farmers. Porous and loose soils are much benefited by being compressed, particularly after receiving a dressing of loam or sand. Light sandy soils are much improved by the use of a good roller.

Rotation of Crops.—There is another means of improving a soil without the use of manure, by growing different kinds of plants in succession upon the same soil; this is called a *rotation of crops.*

It is well known that all plants will not thrive equally well on the same soil; because, some require a particular part of the soil to perfect their seeds, while others require another part. Therefore, if the different kinds of vegetables are planted in succession on the same soil, each one will deprive it of that particular principle which is suited to its nature. This kind of rotation is found to take place in nature. Black and grey ash is generally found to succeed a growth of pitch pine. New lands produce strawberries and dwarf blueberries, and in a short time, they exhanst the soil of the particular principle necessary to their healthy growth, and then decay and disappear, and are replaced by other plants. The manner in which certain plants *travel* from one place to another, is well known, as mint, crow-foot, &c.

The following general principles have been laid down as to the rotation of crops:

1. All plants exhaust the soil more or less.
2. All plants do not equally exhaust the soil.

3. Plants of different kinds do not exhaust the soil in the same manner.

4. All plants do not restore to the soil the same quantity or quality of manure.

5. All plants are not equally favorable to the growth of weeds.

The following consequences may be drawn from these principles:

1. However well a soil may be prepared, it cannot long nourish crops of the same kind in succession, without becoming exhausted.

2. Every crop impoverishes a soil more or less, according as more or less is restored to the soil as manure, from the decay of the plant cultivated.

3. Perpendicular rooted plants, (clover, beets, &c.) and such as root horizontally, (wheat, Indian corn, &c.) ought to succeed each other.

4. Two plants favorable to the growth of weeds, ought not to follow each other.

5. Such plants as greatly exhaust the soil, (as the grains and Indian corn,) should only be sown when the land is in good heart.

6. In proportion as a soil is exhausted by successive crops, plants which are less exhausting ought to be cultivated.

[*Scientific Tracts.—from the N. E. Farmer.*

MANURES.

1. *Of Animal and Vegetable Manures.*

Decaying animal and vegetable substances are by far the most useful class of manures. We shall consider the theory of their operation, their specific kinds, their preservation and application to the soil.

We have already stated as a general principle, that no solid substance can pass into the organs of plants in a solid state. And it is equally certain, that the proper food of plants is either such substances as are soluble, or such as are capable of being converted into æriform matter.

It has been found by universal experience, that animal and vegetable substances deposited in a soil, are consumed during the process of vegetation, and they can only nourish the plant by affording substances capable of being dissolved by water, or gaseous matter; but, the gaseous substances pass into the atmosphere, and therefore must produce but a small effect, as they are soon mixed with the surrounding air. The great object then, in the application of manures, should be to make them afford as much soluble matter as possible to the roots of vegetables, in a slow and gradual manner, so that it may be entirely consumed by the plant in forming its organizable parts.

There are but few vegetable substances which in their natural state are soluble; therefore, they must undergo some change to fit them for the food of plants.

If any fresh vegetable matter which contains sugar, mucilage, starch, or other vegetable compound, which is soluble in water, be moistened and exposed to a temperature of 55° to 80° in the air, oxygen gas will be absorbed, and carbonic acid gas *(fixed air)* will be given out; heat will be generated, and then several kinds of gases will be evolved, and a sour or bitter dark-colored liquid will be formed; and if the process continue sufficiently long, nothing solid will remain, except earthy and saline matter. In proportion as there is more matter soluble in water, other circumstances being equal, will the process be more rapid. It is in this manner that all vegetable substances are reduced to a fit state for becoming the food of plants—in other words, *rotted*. Pure woody fibre undergoes this change but slowly, unless mixed with some substances which are very liable to change and rot. Every known vegetable substance may thus be reduced to other substances which are soluble in water, and therefore may be used as manure. Animal matters are more liable to these changes than vegetable substances; oxygen is absorbed and fixed air ammonia *(hartshorn)* are given out during the process. The produce, as is well known, are various fetid gases, dark-colored acid and oily liquids.

From the above considerations, it is evident that whenever a manure consists already of matter soluble in water, it should not be permitted to ferment, or as farmers express it, it should not be allowed to *heat;* and the only cases in which these processes can be useful, are, when the matters consist principally of substances which are not soluble in water, such as wood. To prevent manures from decomposing or *heating*, they should be kept from water as much as possible; hence the utility of manure sheds, which are beginning to come into fashion; manures should also be kept as free as possible from the air, and cool. Common salt and spirits, it is well known, will preserve meat and vegetable substances, because they attract the moisture from them and prevent the decomposing effects of water.

Of the specific kinds of animal and vegetable manures.

The difference between the various kinds of manure is of very great importance to the farmer, and should be clearly and distinctly known by every cultivator of the soil, because different manures contain different proportions of those elements which are necessary for the food of vegetables, and of course require a different treatment to enable them produce their full effect when applied to a soil.

Green. juicy plants contain much saccharine *(sweet)* and mucilaginous *(gummy)* matter, and of course readily undergo fermentation, which will break down and render soluble the woody and hard parts of the plants. When intended, therefore, for manure, they

cannot be used too green, in order that they may *heat* in the soil, and thereby prevent the escape and waste of their useful parts. Green plants contain the largest quantity of easily soluble matter, when they are in flower, or just before. Green plants, pond weeds, sods, &c., require no preparation to fit them for manure, and if burried in the soil, the soluble matters are slowly dissolved, and the slow manner in which they rot or decompose, prevents the loss of elastic matter, owing to the want of a free communication of air.

From a proper consideration of the above principles, we may see the utility of sowing seed, raising plants, and ploughing them into the soil, to answer as manure for succeeding crops.

Sea-weeds, consisting of different kinds of sea-plants, are extensively used as a manure on our sea-coast. Those who have used this substance as a manure, know that it answers for but a single crop, which is easily accounted for from the large quantity of water which it contains. It is evident then, that sea-weeds, as a manure, should be used as green as possible; fermentation destroys the greater part of their nutritive qualities for the food of plants.

Dry straw, spoiled hay, cornstalks, &c., in all cases are useful manures. It is customary with our farmers to rot these substances before using them, by which means the greater portion of their parts which are soluble, is destroyed and lost. Fermentation will render straw a more manageable manure, and when intended for a single crop, it is better; but the soil is less improved than it would be, if the whole of the vegetable matter were finely chopped and mixed with the soil dry. In this case it would rot in the soil without any loss.

Woody fibre, such as tanners' spent bark, chips, saw-dust, &c., seems to be the only vegetable matter which needs fermentation or rotting, to fit it to become vegetable food. These substances are very retentive of moisture, and therefore cannot be easily rotted without the assistance of some other substance which will ferment, such as dung.

Peaty matters, which contain roots and other vegetable substances, remain for years exposed to air and water, and yet will not heat and rot; therefore, such substances, in their natural state, cannot afford plants much nourishment. The best mode of bringing such substances into matter fit for the nourishment of plants, is to mix them thoroughly with common farm-yard dung. One part of dung is considered sufficient to bring four parts of peaty matter into a state fit to be applied to land. The more such mixtures heat, and the more readily it ferments, the better will it be fitted for the purpose. If a quantity of living vegetable substances be mixed with the peat, the more rapid will be the fermentation; because these have a great tendency to undergo this change.

Manures from animal substances generally require no chemical preparation to fit them for the soil. The great object of the judici-

ous farmer will be to blend them with the soil as intimately as possible, to prevent their too rapid decomposition.

Fish forms a very powerful manure in whatever state it is used. Fish contain all the properties necessary for the food of plants, in a very soluble state, which accounts for their powerful effects. The writer has seen a most luxuriant crop of corn, growing on a poor, hungry soil, manured with one small alewive to a hill.

Bones, of late years, have become a favorite manure, particularly in England. The ground on which many bloody battles were fought during the wars in Europe, have been examined, and the bones of the slain, horses and men, carefully collected and exported by ship-loads to Great-Britain, where they are ground up and applied as manure; a melancholy and degrading illustration of the passion for war. Bone is formed of earthy salts, the principal of which are found in plants, together with fat jelly, &c., which accounts for its powerful effects.

Urine has been long known as an excellent manure. All kinds of urine contain a large quantity of the elements of vegetables in a state of solution; but during the putrefaction of urine, the greater part of soluble matter is destroyed; therefore, it should be used as fresh as possible, and mixed with earth or water, as it is too strong to form a proper fluid nourishment for plants.

The dung of birds is among the most powerful manures, particularly that of such birds as feed on animal food, as sea-fowl. The *guano*, which is used extensively in South America, is a substance of this kind: it is used particularly for Indian corn. The dung of birds has been but seldom used in this country, on account of its scarcity: no doubt it might be found on many of the small island on our eastern coast, and from thence might be transported to the main land with profit.

Night soil, it is well known, is a powerful manure, and always contains abundance of those principles which constitute vegetable food. The disagreeable smell of night soil may be easily destroyed by quick lime; and if exposed to the air in thin layers, it soon dries, forming a mass easily pulverized and without smell. In this state, it is an article of commerce in France, under the name of *poudrette*.

[*Note.*—Gypsum is a better disinfecting agent than lime to use in case of night-soil intended for manure—as it *absorbs* the ammonia, while the effect of lime is to *set it free.*—*Ed. N. E. Farmer.*]

The dung of cattle, horses and sheep, contains a large quantity of matter soluble in water, which substances are exactly similar to the soluble parts of the vegetables on which they feed and are nourished. The part of dung which is not soluble, appears to be woody fibre. In the treatment of the pure dung of cattle, horses, and sheep, there is no reason why it should be made to ferment, except in the soil—or if suffered to ferment, it should only be in a slight degree, merely to bring on a disposition in the woody fibre to change. [Boussingault in his recent work, also supports this opinion.] The grass in

the neighborhood of recently voided dung, is always coarse and dark green: many persons suppose this to be owing to some noxious quality in green manure, but it is rather the result of an excess of food furnished the grass. *Scientific Tracts—from the N. E. Farmer.*

[To be Continued.]

EFFECT OF A STRAW TOP-DRESSING.

We gave in our last, a number of experiments which had been tried in England, with straw as a top-dressing. These experiments, so far as they went, were highly satisfactory, and gave assurance that whatever might be the peculiar *modus operandi* by which straw thus applied acted, its effect was highly salutary in urging forward vegetation and increasing the products of the crops upon which it had been tried. Since then, we have made an experiment ourself, which proved so efficacious, and illustrated the benefit derived so conclusively, that we feel justified in stating it, in order that it may encourage others to test the utility of the practice.

In the beginning of May last, having a few seed of a variety of the *Cantaleupe* called the *Alicant Sweet Melon*, we prepared a couple of hills with great care as to manuring, digging, and the pulverization of the soil, and planted the seed: they came up promptly and looked healthy, but from the very onset of their coming up, the vines failed to grow, and up to the 28th of June, the largest had not covered a space in circumference bigger than a breakfast plate. Anxious to promote their growth, we had repeatedly resorted to watering with dung tea, followed by dustings of ashes and plaster, but all to no purpose. On the day we have named, we covered the hills about half an inch deep with cut straw, and had the satisfaction to see the vines grow off almost immediately with vigor; they put out numerous runners and blossomed profusely in a few days. The largest hill of vines will now, this 19th of July, cover a space in circumference of many feet, and is fruiting as finely as we could desire. That the application of the straw changed the habits of the vines, we have not the slightest doubt, though we are not prepared to state the why and the wherefore—the effect, however, was too striking for us to resist the only rational conclusion to which our mind could arrive, viz: *that the straw did make the vines grow.* The location of the hills is close by a brick wall, with a southern exposure, and it may have been, that the reflection from the wall, as acted upon by the rays of the sun, so abstracted the moisture from the earth, as to render it too arid to be promotive of vegetable growth; but this unfriendly effect we obviated to a certain extent, by watering the vines just at sundown, during the prevalence of the drought, at least thrice a week. This attention kept them in a green and healthy condition, so far as appearances went; but notwithstanding all we did up to the application of the straw, we could not make them

grow. The straw, by preventing evaporation, preserved the moisture of the earth about the vines; and it may be, that to that mechanical agency we are indebted for the good results we have detailed. But be that as it may, we should be over skeptical were we not to ascribe them to the salutary influence of the straw, and we should be equally skeptical were we not to yield to the conviction that top-dressings of straw, hay, leaves, and similar substances, may be rendered eminently useful in the culture of the earth. [*Amer. Farmer.*

HEDGE FENCES.

Messrs. Editors:—Cannot something be done to arouse the public mind to the importance of cultivating hedge plants and forest trees. In a country where even the *present* state of improvement cannot be kept up for any considerable time without an enormous expense, one would suppose that a deep solicitude would be felt on this subject. Could we exclude the rascally hog from the commons, we might make safe hedges of the prim, mulberry, crab-apple, and almost any of the varieties of the thorn. But while there is so much respect paid to, and sympathy for the rights and liberties of the swinish multitude, we may despair of ever doing any thing in the way of hedge fences. In regard to forest trees, however, the case is not so hopeless. Their seems some disposition on the part of many to do something in this way. If nurserymen would devote a part of their attention to procuring seeds and raising young forest trees they might perhaps give an impulse to the business and confer a great benefit upon the country. The seeds of all valuable indigenous trees should, I think, first be tried; and then such as grow in the same climate, among which are, the chesnut, yellow poplar, and cucumber. We ought also to give the white pine a fair trial. A great deal of valuable timber can be raised, even in the short space of ten years. I have an ailanthus large enough for a ten feet rafter, which is only five years old; and locust trees large enough for the hubs of a wagon, which are nine years from the seed. Any quantity of good poles, large enough for fence stakes, can be raised in five years, as can be seen in numerous young locusts groves in this vicinity. If there is any country on earth where timber-growing should be prosecuted with energy, surely it is here, where it is so much wanted, and grows so well. There is one little locust grove near me which was planted in the spring of 1840—the ground prepared as for corn and planted much in the same manner. At one year old the plants were reduced to one in a hill. There were 5000 hills planted, and at this time at least 2000 good fence stakes could be taken out, and enough trees left to occupy the ground the next season. These stakes are worth $3 per hundred. So that the annual value of the land per acre has thus far been

nearly five dollars, without counting any thing on the valuable grove left after the first cutting.

But aside from the profit of planting trees, who would wish to live on a naked prairie? It is not uncommon to see farms which have been for years in cultivation without a single fruit or ornamental tree upon a whole quarter section. Such a farmer, if he can be called one, is not to be pitied, but his wife and children are. The standard of taste and intelligence among the inhabitants of a village or farming community may be *guessed at* with accuracy by taking a careful look at their gardens and trees. In passing through the country not long since, I was captivated with the beauty of ornamental trees set up on each side of the road and in the door yards and gardens. It seemed singular that so much good taste should be manifested in a single neighborhood, while all around there was nothing to be seen of the kind. The whole mystery was explained, however, when I learned that more than one of the brothers of a distinguished American poet were the residents of the neat and beautiful dwellings which I had seen. They by their example had diffused a spirit through the little community which it may be hoped will in time extend itself all over the land.

EDSON HARKNESS.

Chicago, Illinois, Aug., 1845. [*Prairie Farmer.*

LIVE FENCES.

Fencing lands is a subject of much interest to every farmer, inasmuch as it involves labor and expense, while some barrier is created necessary to the protecting of his crops from depredations of various animals. The subject of live fences as an ornamental item is also of interest to every person possessed of a garden spot, be it ever so small, inasmuch as everything that seems to decorate, beautify, and make his home attractive, increases unity and love among his household.

We will first take the subject in reference to the farmer, as with them we deem it of the greatest importance. In some sections of the country there is difficulty in procuring good rail timber to erect even a fence of the kind usually termed "ring" or "snake" fence, while timber suitable for posts, is almost unattainable, even at considerable prices. Some of our readers who have large heavily timbered farms will perhaps think that whatever we may urge upon live fencing cannot be applicable to them, and therefore before we go any farther we will merely say that in the eastern States we know of many farms of fine land, that were once as heavily timbered as any of the west, yet are now entirely denuded of their first productions and subject to general field culture, with the original snake fences decayed and replaced by posts and boards procured many hundred miles distant. Now, why may not many of the farms of the west that are now

heavily timbered ere many years be stripped entirely, and the fencing stuffs be necessarily procured from a distance. The west is growing rapidly, and without thinking over five years ahead many farmers in clearing their lands are entirely regardless of their timber. But even supposing that timber will always be abundant, is it not a question of import whether is it cheaper, neater and better to create dividing barriers of live wood, or continue yearly to erect "snake" or even post and rail fences. In England nearly every barrier, as we are told, is either of live wood, or made of turf, that is, turf cut and laid in high embankments, that taking root grow firm and form a fencing that will turn cattle, but we should think of little use where sheep or hogs were permitted to run. In the matter of fencing in the common way in snake like rings of rails, there is much that is objectionable even if the timber could always be easily obtained. Every year they require to be gone over, after any severe storm of wind, and examined to see if the rails are not displaced, leaving opportunity for the egress or ingress of cattle. After some four or five years from their first building they require occasional new rails and frequently to be entirely relaid. They occupy twice as mnch room as is necessary, affording to the eye, upon almost every farm, the good use to which they appropriate it, in the abundance of brambles and weeds usually denominated hedge row. These brambles and weeds beside being unprofitable are exceedingly industrious, particularly the weeds, as they ripen their seeds and the action of the wind strews them about the grounds, so that the most neat and cleanly kept piece of ground, if surrounded with one of these hedge rows, must the ensuing year be over supplied with weeds. The general use of snake fences or indeed of any timbered fencing, detracts greatly from the beauty and neatness of a farm, as any person who has seen a farm devoid of them in great measure will admit.

"The advantages of live fences are, great durability, imperviousness to man and beast, a trifling expense in keeping in order, and the great beauty and elegance of their appearance. Harmonizing in color with the pleasant green of the lawn and fields, they may, without (like board fences) being offensive to the eye, be brought in many places quite near to the dwelling house. The delightful verdure, and, when in blossom, the exquisite perfume of the hedges in England, have been celebrated by many of the poets."

——"How rich the gale!
Far off I scent the hawthorn's bloom."

In our western country the English hawthorn will not answer the purpose for hedges, any better than it does through the New England States, the hot dry suns of July and August, are almost entire destruction to the plants, although we believe there may be two or three instances where by unusual care in some gentleman's garden they have been made to succeed. But our common thorn *(Cratægus punctata)* is to be readily obtained, and is, next to the Newcastle thorn, *(C. crusgalli,)* probably the best of the thorns for universal adoption, as it is so readily obtained and is natural to our soil.

In some districts where this may not abound and where nurseries are not at hand from which to obtain plants, farmers should gather the berries in the autumn and plant them immediately. The thorn, however, it will be recollected, is not of as rapid growth as some other shrubs, and when a fence is desired to be grown in short time some of the Locusts *(Gleditschia)* should be instituted. We have a hedge now growing of the honey Locust *(G. triacanthos)* which promises well, and we have its general use recommended by some of the best and most observing cultivators in this country. It grows readily from the seed, its foliage is beautiful, its growth extremely rapid, and when kept well trimmed is said to form a stout and hardy hedge. These two species we judge the best calculated for general introduction upon farms, but for the enclosure of the vegetable garden or the lawn, or to plant in small cities, next the street, immediately fronting the house, there are many other plants more suitable. Of these we shall notice first the buffalo berry, *Sheperdia eleagnoiac;* the Sheperdia was introduced to notice some years since, and the Messrs. Winship of Boston first cultivated the plants, and formed a hedge, we believe with very good success. From the nursery of the Messrs. W. plants have been sent to various parts of the country, and have grown and in many instances, where both sexes have been received, (for it is *diecious*) they have fruited producing in abundance. The plants grow freely from the seed, if it is fully ripe when gathered; the leaves are silvery underneath or on the lower side, and in time of a strong wind present a very pretty appearance. The fruit is of a bright red color when ripe, of a taste and flavor much like the cranberry, very estimable in cooking purposes, and has the property of hanging until near mid-winter upon the branches. With this additional quality of the fruit being valuable in culinary uses, we think it the best shrub that has been introduced to notice for the purpose of enclosing a lawn or vegetable garden.

The Osage Orange has been, by some writers recommended as one of the prettiest ornamental shrubs for a hedge; but although its foliage is of bright and beautiful green, we confess our doubts whether it is sufficiently hardy to withstand our climate. We shall perhaps be considered as prejudiced, by some persons, for this expression, but we must be permitted to state that while it may answer immediately upon the lake shore, back from such influence as the lake conveys we should hesitate to guarantee but few plants living through our winters. For evergreen hedges the arbor-vitaes, and the red cedar, if kept well trimmed and low, are well adapted. They form, however, more of a screen than hedge, as they are not proof against the innovations of boys or cattle. The Privet or Prim *(Ligustrum)* is a sub-evergreen, that is perfectly hardy, of ready growth, of a very pretty foliage, and easily kept in order. It will grow from slips or cuttings, and when a person leases ground for a term of years is perhaps the most economical, while it is at the same time very pretty. The closing few remarks we extract from an

article upon the subject of live fences, written by Mr. A. J. Downing some six years since.

"It is commonly believed that a great length of time is necessary for the growth of a good hedge. With the ground badly prepared, and a plant like the English thorn, unsuited to the climate, this is undoubtedly true. But if the soil is in good order, previous to planting plants of American thorns, selected and well cultivated, handsome hedges may be produced in four to six years. When fully grown, they are indisputably the finest enclosures for the country in the world.

The wall of masonry, the iron pailing, or the wooden fence, may be well suited to the vicinity of houses in crowded towns; but for harmony of color, freshness of foliage, durability, and, in short, all that is desirable, the *verdant hedge* is without an equal. In the spring the air is sweet with the perfume of its blossoms; in summer the eye rests with pleasure on its deep green foliage; and in autumn its blushing berries and gaily tinted leaves adorn the landscape."

We must be permitted to express our views on this subject to Nurserymen. We think each Nurseryman who cultivates any variety of plants for the purpose of hedges, should have also a short piece of hedge of each variety. By this means purchasers would be better able to judge of what would best suit their wants. The sight of a hedge in fine growth well trained would also serve to induce many farmers to adopt them, for every one knows the backwardness of mankind to adopt what their fathers did not before them. [*Western Reserve Magazine,*

Cleveland, Ohio, Aug., 1845.

PICKLING MEAT.

Professor Refiensque denounces the use of saltpetre in brine, intended for the preservation of flesh for food. That part of the saltpetre which is absorbed by the meat, he says, is nitric acid, or aquafortis—a deadly poison. Animal flesh, previous to the addition of pickling, consists of gelatinous and fibrous substances, the former only possessing a nutritious virture; this gelatine is destroyed by the chemical action of salt and saltpetre, and, as the Professor remarks, the meat becomes as different a substance from what it should be, as leather is from the raw hide before it is subjected to the process of tanning. He ascribed to the pernicious effects of this chemical change in pickled meat, all the diseases which are common to mariners and others who subsist principally upon such food, as scurvy, sore gums, decayed teeth, ulcers, &c, and advises a total abandonment of the use of saltpetre in the making of pickle for beef, pork, &c., the best substitute for which, he says is sugar, a small quantity rendering the meat sweeter, more wholesome, and equally as durable. [*Foreign items in Am. Agriculturist.*

Communicated for the Southern Agriculturist.

REPORT OF THE COMMITTEE OF INSPECTION OF THE ST. JOHN'S COLLETON AGRICULTURAL SOCIETY.

Edisto Island, Club House, Sept. 8th, 1845.

The Committee of Inspection report: That they commenced their tour of inspection on the 29th ult., and examined the crops of members on that day and the 2nd and 5th inst's.

Never, since the origin of this Society, has any Committee found it more difficult to determine on a satisfactory estimate of the growing cotton crop. In most seasons, cotton is sufficiently advanced in growth and maturity, on the first of September, to enable the planter to calculate, with some degree of certainty, the probable yield of his crop. Such is not the case now. A few fields are, comparatively forward: they exhibit the usual proportion of hard pods, and may, accordingly, be estimated. These are exceptions. Not less than three fourths of the fields inspected are exceedingly backward; and so diseased are the stalks in some of them as to render it very problematical whether such fields will mature all, or only one half of the present show of fruit. Dry and clear weather for a few weeks would do much towards insuring a good harvest. On the other hand, heavy rains and a clouded sky, even for a few days more, would be destruction in their consequences. An equinoctial gale, or a general invasion of caterpillars would blast every remaining hope of a tolerable crop; for, in either event, the entire top fruiting would disappear. In the report of last year, your Committee of Inspection remarked that "there was more cotton gathered in the month of August than was ever housed in that month of any previous year." Your present Committee report, that much less than usual was picked in, during the August of this year. In view of this fact and the already described state of the crop, they do not pretend to predict, with any degree of accuracy, what will be the yield of each member's crop. That the general yield will be less than what was realized last year, they have no doubt; their estimates will prove this to be their impression.

The causes which have lead to the general backwardness of the crops, and the diseased state of some fields, are so obvious to all, that your Committee deem it unnecessary to go at length, into the history of the season. The drought which prevailed from the

time of planting in April to the 12th of May—the occurrence, then, of a general rain, which brought up the seed, which till then, had remained inactive in the soil—the slow progress of the crops in fruiting and growth, till about the first week in July, during which time another drought prevailed—the putting out of forms and the steady growth of the plants, under the influence of moderate rains, from that time till the inundating rains of August—and the extremely rapid growth, and the disease consequent upon these rains, have been the prominent features of the season on this Island. On the first of July, last year, cotton had attained a more than ordinary height, and an advanced state of maturity. The very reverse was the case this year. On the first of September, last year, it had added but little to the height reached in July, and was, in our phraseology, ripe. On the first of September, this year, most fields of cotton had more than doubled the height attained on the first of July, and had but a meagre supply of ripe pods.

A portion of the crop (about one fourth) presents an appearance entirely unlike the rest. It was planted in March, when there was sufficient moisture to bring it up in due time, and cause it grow off with vigor and promise well. Planters regretted not having put in the whole of their seed earlier, and all predicted that the old cotton would produce more than the young. But planters, like the rest of mankind, are fallible, and sometimes err. The young cotton is now decidedly the most promising. The old, in the encounter with the drought, received a severe check. When the rains set in, it was not only stunted but diseased. The sudden supply of moisture, increased the disease, and caused it to cast most of its ripe fruit. Though now affording heavy pickings, it cannot, should the remainder of the season be favorable, yield as much as the young cotton.

Your Committee further report: That in no previous year has more, or greater variety of manure been applied. Planters seem now, fully to appreciate the maxim that "too much cannot be done for our lands." Never before have the good effects of manure been more manifest. The advantage of long continued manuring is obvious. It is only by this that our lands can be made productive in the trying seasons to which they are exposed in two years out of every three, and it is only by this that worn out soils can be restored to original strength and profitableness. To enumerate the different kinds of manure used, and their effects, would require

more time than the present occasion affords. Your Committee remarked that cotton seed assisted by mud, has been extensively used and generally with the best results. Without mud it cannot be considered a safe manure, any more than the running cow-pen without mud. Guano has been introduced on two plantations—Mr. Jenkins Mikell's and Mr. William Seabrook's. The expense incurred in the purchase and application of this material, is not so great, when the astonishingly good effects it produces are considered, as to deter any planter from a trial of it. A personal examination of the experiments now being tried, would convince members that it is no humbug. Mud, marsh, rushes, the running cow-pen, and the different kinds of composts have not disappointed the expectations of planters. Mud, however, has in some instances, failed to do much good, owing, no doubt to its well known inaction in very rainy seasons.

The provision crops are not as abundant as they were last year. The corn crop will certainly be less than an average one, and the same remark applies to the root-potato crop. Both had to pass through a severe trial in the drought of the spring. Your Committee cannot help suspecting, that a part of the failure may be attributed to the fact, that corn has had the benefit of much less than its accustomed supply of cotton-seed; that manure having been shared with the cotton fields. "Robbing Peter to pay Paul" is not altogether a "fair operation" in agriculture, at least, it may not prove a profitable one. Slip potatoes and peas having met with a favorable season, promise to do well, and will in a great measure supply the deficiency occasioned by the partial failure of corn and root potatoes.

Your Committee in conclusion, now proceed to report their estimates of the several cotton crops inspected by them.

(The number of acres planted by each member, estimate of his crop, &c., omitted in publishing.)

Average estimate of all the crops inspected, -	98 lbs. per acre,
Estimate of last year, - - - - -	134 " "
Difference in favor of last year, - -	36 lbs.

WM. M. MURRAY,
Chairman.

Published by Request.

AGRICULTURAL SOCIETY OF SOUTH-CAROLINA.

REPORT ON CRADLING RICE.

At a meeting of the Agricultural Society of South-Carolina, on the 16th of Sept. at the Carolina Hotel, the following Report was read:

The Committee to whom was referred the examination of the Cradling of Rice, in the harvest, in preference to the established use of the hook, beg leave to Report:—

By appointment, they met at Dr. Porcher's plantation, to whose politeness and co-operative aid, they were indebted for the fairest opportunity of a most minute examination. The Committee commenced by instituting a Reaper's race between an athletic active Hooker, and an expert, experienced Cradler. The former went off, carrying four rows, which was one more than customary; the latter mowed six rows at a sweep—and reached the terminus much sooner than his opponent. This convinced us, without experimenting as to the exact amount of the superior velocity of the Cradle system. In addition to which we ascertained from Dr. Edward Ravenel, a gentleman of known authenticity and experience, that three acres a day, was a task of easy execution, as is generally assigned to the laborers on any well regulated plantation. It was suggested that the cutting of rice was so easy a branch, that to accomplish more was of minor importance. But if a hand can do three acres, or even say two and a half with a scythe and cradle, and only one with the hook, it must be apparent that the labor gained, could be profitably applied to the improvement of the plantation in a variety of ways. The next thing that solicited our attention was whether the hook or the cradle wasted most rice. It was very obvious as regards the mode of using the hook, that the flirting and twirling of the rice, which necessarily continues, until the hand of the reaper grasps as much as will make a sheaf, occasions a great many grains and snapt ears to scatter over the ground, and this is peculiarly the case when the rice is over ripe. On the contrary, the scythe laid it down with the most apparent ease and gentleness, causing less waste, as it slided from the cradle without any agitation. As the product of six rows, when laid upon the stubble, appeared to be too large a mass to admit of sufficient curing in the usual time, we gave particular attention to this important point. It appeared upon inspection, that the height of the stubble from the ground, admitted a free column of air to circulate beneath, and presented above a uniform surface for the influence of the sun and air. The rice was more uniformly spread and not as compressed in a small space, as that laid in bunches by manual operation. We were also informed by Dr. Ravenel, that it requires no more time to effect the drying than necessary for that cut with a hook. It would be proper to remark, that rice which has lodged from

luxuriance or become entangled from any other cause, cannot be cut with the scythe, if not, it can be cut at any desirable height. The question might arise, is it not a skilful operation, exceeding the general capability of negroes. It would seem not, as several raw recruits were enlisted, who, after but little discipline, accomplished a satisfactory execution. Your Committee are aware, that in forming an opinion of a principle, from a mere experiment, there is danger of error from the fact, that there are oft times hidden causes which elude the grasp of observation, and are only developed when the principle is stretched into a general and continued practice. The apprehension of this, which has frequently occurred, excites in some an unreasonable opposition. Suspected difficulties, are converted into absolute failure, and thus, " enterprises of great pith and moment, with this regard, their currents turn away and lose the name of action." On the contrary, with some persons, every novelty is hailed as a wonderful discovery, and every change honored with the name of improvement, kindling a confident buoyancy, which outstrips reason, " and gains remote conclusions at a jump." Your Committee, to avoid both extremes have presented you a simple narrative of what they saw, and believed without expressing any opinion as to its wide spread or permanent popularity. But they assert that the experiment, warrants a fair trial. With respect to the scythe and cradle, as an implement of rice harvesting, perhaps improvements may be made upon these imported from the North. As the fingers which constitute the cradle are apt to spring and move out of line, and are also very brittle and liable to break—they may be made of hickory, wahoo, or some other durable wood, or lightly cased with tin. This suggestion is not designed to remedy any serious difficulty, as additional fingers can always be purchased, and kept ready to supply the place of those injured. All of which is respectfully submitted.

FRANCIS D. QUASH.
JOHN S. ASHE.
CHARLES ALSTON.
EDWARD BARNWELL.
WILLIAM BRISBANE.

—

NOTES FURNISHED BY DR. RAVENEL.

The fingers at the North are bent by steam, which causes them in the dews of the morning to straighten. This can be remedied by cutting an ash just beneath the surface of the ground, and splitting a block of about five feet, through one of the roots which gives to the finger, the natural bend. Never tried any other wood, finding the ash to answer. A common carpenter has made the above mentioned fingers. Three men have been taught by me. Two accomplish the three acres with ease, declaring they would rather do it than cut ¾ of an acre with the hook. The third has never been able to accomplish more than 2½ acres—although a full hand, but only employed to mow one crop. An important consideration is brought to view by the following remark : Upon the first attempt, the awkwardness of the operator injured the implement by striking the

scythe into the ground and breaking it, and by entangling at the same time the fingers in the rice, they also broke, both of which difficulties yielded to a week's perseverance and practice. During the commencement, one implement was destroyed, and the valuable parts which remained, were applied to the other as it became injured. The same cradle lasted for the harvest of three successive crops, with the occasional renewal of a few fingers. The regularity of the lay of the rice on the stubble, greatly facilitates the operation of lying or sheafing of the rice.

REPORT ON SWEET AND IRISH POTATOES.

Presented to the Newberry, S. C. Agricultural Society, at their annual meeting in July last.

The committee on the culture and preservation of the sweet and Irish potatoes, ask leave to make the following report:

The cultivation of the sweet potato, if not of the first importance to the farmer, is certainly sufficiently so, to demand his careful attention. It affords one of the many comforts, which results from a well cultivated farm.

There is, perhaps, no vegetable of equal value, which is so easily produced; and this may account, in part, for the little attention which has hitherto been paid to this valuable production.

The varieties of the Spanish potato include what is supposed to be the best adapted to the soil and production of the upper districts of this State. The red potato, though not so delicious, comes in much earlier than the spanish, grows to a greater size, is not so apt to rot, and improves in flavor by keeping. The yam potato has not been generally planted in this section of the country, as yet, owing to the belief that the sandy light soil of the low country, and seaboard, is better adapted to its production, than the clay soil of the upper districts. Though by the selection of suitable ground, and proper cultivation, it is thought the yam would do well with us. A stiff clay soil is unsuitable for all the varieties of the sweet potato, with which your committee is acquainted; while that which is rich and sandy, of all others is the most suitable for its growth and perfection.

After the ground is well prepared, you may plant about the first of April, which should be done in the following manner: If you plant in hills, check off the ground at the distance of four feet each way, and with the hoe, draw up two corners of the square, which will make a flat hill, upon which drop the seed potatoes from two to four, according to their size; after this is done, draw up the two remaining corners of the square, which will afford soil enough to cover the seed sufficiently deep, and round off the hill. If planting in beds be preferred, the ground should be thrown into ridges as high as it can well be done, with a twister plough, and then opened

with a scooter, and the potatoes dropped one in a place, at about ten or twelve inches apart, and then covered carefully with the hoe, about three inches deep. If the ground upon which you plant be rolling, there is good reason to prefer the beds, for you may give them such a direction, as will save the land from washing. If the ground be level, some of your committee would prefer planting in hills, for the two following reasons: first, there is a greater amount of surface presented to the action of the atmosphere; secondly, the ground can be cultivated both ways, and thus be kept loose and in better condition for the growth and expansion of the tubers.

The cultivation is both easy and simple. After you get a good stand, scrape down the hills or beds, as the case may be, and after ten days or two weeks, plough and hill up moderately, taking care to mould the vines neatly, without covering them.

After the vines have commenced running pretty well, and before they are long enough to be tangled with the plough, give them another good ploughing, and draw up the hills or beds to the size you intend, spreading the vines out so equally as not to be entangled, after which there is nothing more required, unless it be to pull up by hand, the weeds or bunches of grass, that may chance to spring up among them. If you have planted in hills, and the vines have acquired sufficient length to be laid equally between the hills in the same direction they are to be ploughed, they will be partially covered by the plough, and new tubers will be formed at the joints of the vines, and in this way as much seed, of the best kind, can be made, as would, perhaps, plant the same ground the succeeding year, in addition to what you would make otherwise. The potatoes ought to be dug shortly after the frost has checked the growth of the vines; for if suffered to remain in the ground until they are affected with the frost, it is impossible to keep them. It is believed that the following method is the best, for keeping the sweet potato through the winter and spring: Form a circular bed a few inches above the surface of the ground, upon which spread some dry straw. In the centre of this bed drive down four small pieces of timber, or boards, bringing them in contact, so as to form a tube as high as you intend to make the bank. This will afford sufficient ventilation as well as the means of escape to the moisture, which is produced while the potatoes are going through a sweat. After picking out those that are cut and bruised, pile the remainder around the tube in the form of a cone, to the amount of some fifty or sixty bushels, taking care to keep the hole open at the top. When this is done cover them over with a good coat of dry corn-stalks, over which spread some straw, and cover the whole up with earth, five or six inches deep. Nothing more remains to be done but to erect a scaffold over them, to protect the bank from rain.

THE IRISH POTATO.

Your Committee feel confident that there is but one plan of cultivating the Irish potato successfully in this warm dry climate.

By not adopting this system generally, you frequently hear your neighbors complain that they have made a bad crop, especially when the seasons have been as dry as the two preceding springs. It is well known that the potato, though an exotic, is produced in more abundance and greater perfection in the soil and climate of Ireland, than in any other country on the globe. It is true that the Northern States, and in the Alleghany mountains, with their vicinity, the potato is produced in great abundance. And why is this the fact? Evidently because the soil and climate, more resemble that of Ireland than ours. The sandy hot plains of the South are not congenial to its growth, and therefore renders its production more difficult. Can this natural impediment with us be removed? We answer only in part. And the following is the best plan with which your committee are acquainted:

In the first place select, if you have it, the north side of a hill, or at least a piece of ground inclining in that direction, which is rich and not very sandy. The reason of this preference is evident. The rays of the sun will strike it more obliquely, and consequently it will not be so liable to suffer from drought; for the potato require more moisture and less heat, than any other vegetable we cultivate. After the ground is well prepared by deep ploughing and manuring, lay it off in drills with a shovel plough, as near as you can, running twice in the same place, without throwing the dirt from one furrow into the other: this done, put stable manure, hog hair, or rotten straw into the drills, upon which drop the seed about ten inches apart, and cover them with a rake sufficiently deep to afford moisture to bring them up. The principal thing, however, and upon which *mainly* depends the certainty of a good crop, is yet to be done. With straw or leaves cover the ground over from one to two feet deep, (there is no danger of doing too much in this way) and you have not only planted your crop but laid it by; and what is still better, you may depend with considerable certainty, even if the season be dry, that you will make good potatoes, and if it turns out to be wet, they will be large an excellent. It is true they will be a week or two later before they are ready for the table. Another advantage is they will keep in the ground longer without sprouting or losing their flavor. One of your committee speaks from experience. In the spring of 1844, he covered with leaves one half of his potato patch, and left the other uncovered, which was cultivated in the ordinary way, with the view of having them come in for early use. The season was dry, and those uncovered were not worth digging. By the time they attained the size of a patridge-egg, they commenced sprouting, and were useless; while those which were covered grew to a good size, without sprouting, and of excellent flavor.

Your committee are free to acknowledge, that they cannot state, with much confidence, what is the best method of keeping the Irish potatoes through the winter season. But believe that they would keep well if put on a floor or in a cellar, with plank under them, and kept covered with a good coat of straw; occasionally overhauling

the pile and selecting the rotten ones from among the sound. They might do equally well, by securing them as we do the sweet potato. But so far as we are acquainted, the usual plan has been to aim at raising no more than is necessary for table use during the spring and summer, and procure from the North our seed for the next crop. By a little more attention, however, we could raise an abundant supply for ourselves, without depending on the North.

As it regards the value of both the sweet and Irish potatoes as articles of food, both for man and beast, little need be said to this community. The chemical analysis, which has been made of both these valuable esculents, shows them to possess the gluten or nutritive quality, in great abundance. As a proof of this fact, we refer you to the black population in the lower parts of the Southern States, along the seaboard, and the adjoining islands, where the sweet potatoes are raised in great abundance, and where with other things, they get a liberal supply of them, and thus are not only able to perform their labor, but enjoy fine health. What would Ireland, with her dense population, do without the potato? The starvation of thousands of her people, annually, would be the consequence. Upon it, the lower orders of society chiefly depend for subsistence; and for a proof of its healthy and nutritive qualities, we refer you to the athletic frames and rosy cheeks of the Irish peasantry.

The potato is, also, an ingredient which is required in the preparation of the most delicious kind of bread, with which the farmer's wife replenishes his table, and regales his appetite. All of which is respectfully submitted. GEO. W. GLENN,

Chairman.

COMMERCIAL ASSOCIATION AT COLUMBIA.

TO SUPPLY CORN TO THE PEOPLE.

Pursuant to public notice, the Columbia Commercial Association and the citizens assembled at the time and place appointed, for the purpose of adopting some mode of supplying the people with corn. A report and resolutions were offered and adopted at the meeting, which are too long for insertion in our pages. We will however, make some extracts. With regard to the quantity of grain which will be wanted in the suffering Distrits, the report gives the following statistics, which will serve as a basis for calculation. The entire population of Fairfield, Chester, York, Newberry, Union, Laurens, and Spartanburg Districts, is estimated at about one hundred and forty-five thousand persons. These Districts compose pretty much all the destitute portions of the State.

Allow for each individual 10 bushels of corn, and it makes - - - - - -	1,457,750 bush.
And for every 7 persons, 1 horse, or 20,825 head and 40 bush. to the horse makes - -	833,000 "
Total qaantity required for bare subsistence, allowing nothing for cattle, hogs, &c. -	2,290,750 "
Deduct the probable quantity that will be gathered, say two thirds, - - -	1,527,167 "
Leaves the deficiency or amount to be provided,	763,583 "
Of this amount they will probably obtain from other markets, - - - - - -	263,583 "
Leaves the quantity to be furnished by Columbia, - - - - - - - -	500,000 "

Of course, calculations are founded very much upon conjecture, and the result may vary from them materially, but the Committee are of opinion, they will approximate very near the truth. The next point in the inquiry is, where is the grain to be procured, and what is the best mode of putting it within reach of the people?

The best place to look for the supply will be Baltimore, or in the great West. In the latter, the Committee think by far the largest and cheapest supplies can be obtained.

But when the corn is delivered at Charleston, then arises the difficulty of the transportation to the various points of consumption.

The Rail-Road to this place obviates much of that. The company have liberally set the example. They have successively reduced the charge of transportation from 10 to 8, and within a few days to 5 cents per bushels, at which it now stands, as their contribution to the relief of the people.

Let us now follow this liberal example, so nobly set us. Let us send our agents to buy the corn at the lowest possible rates, ship it here, and sell it to the people at such rates as will barely cover costs, charges and interest. The Committee have reason to believe it can be sold here through the whole season, at not exceeding 70 cents per bushel, and we have grounds for hope that it can be afforded at 50 cts. per bushel. But is this all that can be done? It is all that we can do as the merchants of Columbia, or as individuals. (As members of the great community, the State, we perhaps, can do what is not less useful, and perhaps would be more highly advantageous as relief.) The necessaries of life, such as corn, are always bulky and heavy, and the cheapness with which a destitute community can be supplied, depends entirely upon the character of their highways. If they are made good, provisions can be distributed with great facility and cheapness.

A committee was appointed, whose duty it is to open a communication immediately with agents that they may select, at Baltimore, New Orleans, Memphis and St. Louis, and such other places as

they may think proper, to ascertain from what point corn can be laid down in Charleston, at the lowest rates, and to report through the public journals. The Committee are as follows: J. Y. Lyles, Robert Bryce, John Caldwell, Joseph Winyard, J. F. Marshall, J. D. Mordecai.

TO DESTROY INSECTS ON TREES.

John R. Cross, in the Boston Cultivator, advises those who have trees, shrubs and vines, affected by the ravages of insects, to drive nails or brads into the body or limbs thereof. He says, last fall he mentioned the experiment to Dr. Watson, of Newburyport, who took him to his garden, where last year a fruit tree was infested with the nests of caterpillar or canker worms as were his neighbors' trees, and showed him a board nailed for convenience of a clothes line upon one of the large limbs of the tree; he said he noticed a little while afterward that the nests on that limb dried up, and the worms disappeared, though the cause did not then occur to him, though now apparent as it will be to any scientific mind.

Mr. Cross adds:—" Drive carefully well home, so that the bark will heal over a few headless cast iron nails, say some 6 or 8, size and number according to the size of the tree, in a ring around its body, a foot or two above the ground. The oxidation of the iron by the sap, will evolve the ammonia, which will, of course, with the rising sap impregnate every part of the foliage, and prove to the delicate palate of the patient, a nostrum, which will soon become, as in many cases of larger animals the real panacea of life, *via Tomb.* I think if the ladies should drive some small iron brads into some limbs of any plant infested with any insect, they would find it a good and safe remedy, and I imagine in any case instead of injury the ammonia will be found particularly invigorating. Let it be tried upon a limb of any tree, where there is a vigorous nest of caterpillars, and watch it for a week or ten days, and I think the result will pay for the nails."

The efficacy of the remedy as above pointed out, seems to be confirmed by the following fact noticed in the Richmond Planter:

" A singular fact, and one worthy of being recorded, was mentioned to us a few days since, by Mr. Alexander Duke, of Albemarle. He stated, that whilst on a visit to a neighbor, his attention was called to a large peach orchard, every tree in which had been totally destroyed by the ravages of the worm, with the exception of three, and these three were probably the most thrifty and flourishing peach trees he ever saw. The only cause of their superiority known to his host, was an experiment made in consequence of observing that those parts of worm-eaten timber into which nails had been driven, were generally sound. When his trees were about a year old he had selected three of them and driven a ten-penny nail through the body, as near the ground as possible; whilst the balance of his

orchard had gradually failed and finally yielded entirely to the ravages of the worms, these three trees, selected at random, treated precisely in the same manner, with the exception of the nailing, had always been vigorous and healthy, furnishing him at that very period with the greatest profusion of the most luscious fruit. It is supposed that the salt of iron afforded by the nail is offensive to the worm, whilst it is harmless, or perhaps even beneficial to the tree."

Facts similar to the above we have seen published many years since, so that there is no novelty about the remedy ; however as the repetition of old things, when good in themselves, tends to spur up many a forgetful memory, we re-publish the above in the hope that it may lead to a sufficient number of experiments to test the efficacy of the remedy.

Mr. Cross terms it "*a cheap and simple experiment for the preservation of trees, shrubs and vines from the ravages of any insects that subsist upon their foliage, fruit or sap.*" "Experiment" it may be, but whether it will prove a *remedy*, is another affair. If it really be effective, as the case alluded to by Mr. Duke would seem to imply, it has, as the writer observes, the quality of cheapness to commend it to favor. [*Am. Farmer.*

—

The Nectarine—Peach—The "Nail" remedy—Catlin's Indian method of Taming Horses.—After the above was in type, we received the following valuable communication from an eminent planter of South-Carolina—and as "in the mouth of two or three witnesses" every thing is to be established, the fact may be considered as settled, that the driving of nails into the peach tree, will, by the sap becoming impregnated with the salts of the iron, be found a *remedy* for the peach from the ravages of the insects.

The other matters treated of in the communication of our correspondent, will be found of much interest.

"BEAUFORT, S. C. Aug. 6, 1845.

To the Editor of the American Farmer:

Having succeeded this season in raising the nectarine, a fruit I have never before seen free from worms, and also the peach under circumstances generally considered unfavorable, that is, in land highly manured with stable manure, it has occurred to me that our failure is often attributable to the exhaustion of the soil when we little suspect it. With us generally, young trees bears an abundance of fine fruit for the first three or four years, and then the fruit becomes small and full of worms. Trees however that happen to be near a kitchen, negro house, poultry house or stable, frequently continue growing and bearing long after the others placed uuder more favorable circumstances, have ceased to afford any fruit worth eating. With any thing else, we would immediately attribute the productiveness to the richness of the soil, but in the case of the peach, we hunt far and wide for the cause, having been all educated in the belief that it requires a poor soil. Mr. Physick, in his application of salt and nitre, made a large step towards what I believe to be the

tiue management of this tree, as nitre is a highly concentrated manure, and salt a powerful manure to many plants, of which the peach tree is one. I find my ideas recommended by the *Bon Jardinier*, for in the number for 1845, page 469, in the first section, on the cultivation of the peach, it says, "une bonne fumure tous les 3 ou 4 ans;" which I translate a "good manuring every three four years."

An acquaintance informed me the other day, that last year he drove four large nails into each of his peach trees except one, near the ground, the result of which was, that *all the trees that had the nails were free from worms, while the one without the nails had its fruit filled with worms*—and this year two trees that bore early fruit, being all that had ripened up to the time he mentioned the circumstance to me, bore fruit free from worms. I have also been informed upon good authority, that *salt mud* applied to grown trees makes them bear *very fine* fruit free from worms, but after that the trees are killed by the mud.

I have grown uncommonly fine vegetables of the following kinds, viz., cauliflowers, brocoli and Brussels sprouts, and cabbages generally, Norfolk turnips, radish, mangel wurtzel, and most kinds of beet and Swiss chard, asparagus, lettuce and cantelopes, on a small island that is frequently *over*flowed by saltwater, nearly as salt as in the ocean, as my plantation is in sight of the ocean, and only about twenty miles from it by navigation.

I would also mention that last winter it occurred to me to try the Indian method of taming wild horses, mentioned by Catlin, of blowing into the nostril, upon a mare about four years old, that never had a rope upon her until the day before, and was only led about half a mile from one stable to another. She was very obstinate, but in about three hours, at the most, she would draw a log, harnessed with trace chains, quietly, and was quite broken and manageable, and never gave any further trouble worth mentioning, though I never had any thing personally to do with her afterwards.

I remain yours, respectfully, ROBT. CHISOLM.

ADVANTAGE OF CRUSHING THE FOOD OF HORSES.

As I have just concluded the experiments you wished, I hasten to forward you the results, which are as follows:

Two horses in good health, in daily work and as nearly as possible equal in size and age, were selected for the experiment. They were each allowed 5 lbs. of oats and a sufficiency of good hay, of which they consumed about 17 lbs. per day each. The only difference in feeding consisted in one horse having the oats thoroughly crushed, and the other without crushing. On the fourth day of this mode of feeding, the solid excrements of each horse were examined. 100 parts of the dung of the horse fed on crushed oats were found to be deprived of all the nutricious matter contained in the food, and to consist of woody fibre, mixed with the animal secretions and some salts; while 100 parts of the dung from the horse fed on uncrushed oats, were found to contain ¼ per cent. of nutritive matter,

consisting of starch and gluten, which had not been acted on by the stomach, mixed with the ordinary constituents of the solid excrements of the animal—this arising from the inability of the horse to perform perpect mastication, and must vary with circumstances, such as age and rapidity of feeding. The same horses were then fed with hay, cut and uncut. At the expiration of the third day, the excrements were examined, but no chemical difference in their composition was detected; the food in both instances was found to be equally exhausted of its nutritive matter. But the shorter period occupied by the horse in filling its stomach, and consequently greater amount of rest obtained, and the prevention of waste, by cutting it into chaff, are advantages which require no illustration from me. A. GYDE, *in London Ag. Gaz.*

NEW HAMES AND ELASTIC SADDLES.

Mr. Bencraft, a gentleman residing in Devonshire, attended the weekly meeting of the Royal Agricultural Society, at their house in Hanover-square, and presented the council with specimens of his newly invented agricultural and driving hames, and elastic saddle. The principle of the former invention transfers the draught from the hitherto injurious position, (at the point of the shoulder) to the withers or front of the spine, thereby imparting a great increase of muscular power to the horse over his load, giving him the entire and free use of his fore-limbs, and at the same time protecting him from the sufferings of galled shoulders. Many of the first veterinary surgeons in the country having acknowledged that these benefits are secured by Mr. Bencraft's invention; the use of it having already released many horses from their sufferings, it is with great pleasure we recommend it to the public,—and looking at the subject, whether regarded on the score of utility or humanity, we consider Mr. Bencraft entitled to the thanks of the community, and we rejoice to hear that his inventions are warmly patronized by that excellent institution, "the Royal Society for the prevention of cruelty to Animals." The saddle, which is already in extensive use, affords a mechanical protection to the spine, and dorsal muscles, thereby enabling the horse to carry his rider with increased facility and speed, and at the same time affording a delightful elastic seat to the rider, by which concussion and fatigue are almost wholly removed. *Eng. paper.*

AGRICULTURAL STATISTICS.

The reports from the Patent Office on the Agriculture of the United States, have, for two or three years past, been by far the most interesting document emanating from the Government. Mr. Ellsworth will long be remembered for the industry and the ability with which this part of his duty was performed. It is the intention

of Mr. Burke to continue these reports—giving them, if possible, increased interest and accuracy. He can do this only by the aid of members of Congress, and their constituents. Mr. Cobb is taking the right course to get in his district the information wanted. Let his constituents now do their part. [*Southern Cultivator.*

—

MR. BURKE'S LETTER.

Mr. Camak:—I hand you enclosed, the letter to which I referred when in Athens. By calling the attention of your subscribers in this district to the subject, and requesting them to furnish me with the information sought for by Mr. Burke, we shall render important aid to him in the preparation of his report.

I am, very respectfully, your obedient servant,

HOWELL COBB.

Monroe, Aug. 19, 1845.

—

Hon. HOWELL COBB, Athens, Ga.:

Sir:—Will you have the kindness to furnish me with the estimate of the crops for the present season in your district, either personally or by the aid of others, with the causes of increase or diminution, and such other remarks as you may judge proper for the Agricultural Report for 1845.

				More.	*Less.*
Wheat as compared with the crop of 1844,				per ct.	per ct.
Barley,	"	"	"	"	"
Oats,	"	"	"	"	"
Rye,	"	"	"	"	"
Buckwheat,	"	"	"	"	"
Indian Corn,	"	"	"	"	"
Potatoes,	"	"	"	"	"
Hay,	"	"	"	"	"
Hemp,	"	"	"	"	"
Tobacco,	"	"	"	"	"
Cotton,	"	"	"	"	"
Rice,	"	"	"	"	"
Silk,	"	"	"	"	"
Sugar,	"	"	"	"	"

The per centage on the crop of the preceding year with as much accuracy as your information will admit. Also, please state the average daily and monthly wages of labor (exclusive of board,) of husbandmen, and persons emploped in the different mechanic trades in your neighborhood. I have the honor to be, respectfully yours,

Patent Office, May 12, 1845. EDMUND BURKE.

[We presume that similar letters has been sent to our members of Congress,—but whether they have acted on the matter as promptly as Mr. Cobb, we do not know, but think it an example worthy of imitation.—*Ed. So. Ag.*]

CHERRIES WITHOUT STONES.

The Persian scientific correspondent of the New-York "Courier des Eats Unis," mentions a new discovery of a way to produce cherries without stones. Early in the spring, before the sap is in full flow, a young bearing tree is divided in two down to the branching off of the roots, the pitch carefully removed with a wooden spatula, the parts again united, the air being excluded by an application of potter's clay the whole length of the opening, and bound together by woolen cords. The sap soon unites the several parts, and in two years the tree will produce cherries of the best kind, and having in the centre, instead of the usual kernel, a thin soft pellicle.

DISCOVERY OF THE WHEAT INSECT.

In a number of the New-York Mirror, a correspondent gives an experiment made by himself, which will serve to throw some light upon the nature and character of the wheat insect. He says, "in the spring of 1844, I placed a bag containing half a bushel of white flint wheat, in a seed drawer, under glass, and near the furnace of my green house. On the 6th of March, 1845, I opened the bag, and to my surprise found thousands of living insects, some on the point of leaving the kernel, others were just commencing to eat through, and many were perfectly formed, and running about in all directions. Six years ago, I was in the habit of soaking my early grains in salt brine, for the purpose of destroying the egg of the insect, which I assured my neighbors, much to their amusement and unbelief, was ensconced in the kernel. Now, by accident the fact is made manifest. The insect would not have appeared until June, perhaps had the wheat been sown, the warm situation it occupied in the green house brought it thus to maturity." [*Boston Cultivator.*

TO PRESERVE EGGS.

Place a layer of sawdust in a keg, then pack the eggs closely to each other with the *small end down*, to prevent the yolk passing through the white of the egg; over this place another layer of sawdust, packing closely to and between the eggs, where they do not touch each other, and so on to filling the keg; then head it light, and change it end for end every twenty-four hours. In this way eggs will keep a year, and be as fresh as the day they were laid.

[*West. Far. and Gar.*

TO MAKE NEST EGGS.

Take hickory wood, or some kind equally heavy, and trim the eggs in a lathe. Make them larger than a hens, egg; then whitewash or paint then, and they are ready for use. [*Ibid.*

LIST OF PAYMENTS

Hon. James Rivers,	1845	Mr. R. O. Anderson, Georgetown,	1845
Col. Wm. A. Carson,	1845	Mr. John H. Allston, do.	1845
Col. J. J. Ward, Georgetown,	1845	Dr. James R. Sparkman, do.	1845
Mr. Robt. Nesbit, do.	1845	Mr Francis Weston, Jr. do.	1845

TO OUR READERS.

We have been induced to devote a part of this Number to some "*Meteorological Considerations*" from Boussingault's Rural Economy, in hopes of their proving useful to those who have opportunities of taking advantage of their importance. They will be found highly interesting even to the general reader.

The articles on *Manures* from the Scientific Tracts, contain a fund of information, which we hope will be acceptable to our subscribers.

The Report of the Committee of Inspection of the St. John's Colleton Agricultural Society, on the state of the crops in that Parish, will be found not so satisfactory as that of last year.

The Report on Cradling Rice by a Committee of the Agricultural Society of South-Carolina, we have been requested to copy for general information.

The Report on raising Sweet and Irish potatoes, presented to the Newberry, S. C. Agricultural Society, will be read with pleasure by every intelligent farmer.

The Committee appointed to collect corn to feed the people of the Districts in this State, who have been so unfortunate to loose their crops, have made a calculation of the deficiency to be supplied; which we publish in hopes they may be able to obtain it from the different sources pointed out, as speedily as possible.

We publish a letter from Mr. E. Burke of the General Patent Office at Washington, calling on persons interested to give an estimate of their crops, which has been circulated in Georgia, through the politeness of the Hon. Howell Cobb,—as we understand similar letters have been written to this place for the same information, we shall be glad to hear that the request has been complied with, and that South-Carolina may not be behind her sister States in exhibiting her agricultural productions.

☞ Persons at a distance indebted for the *Southern Agriculturist*, will please forward their money by mail, in the best bills they can obtain.